Laboratory Testing for Lyme Disease

Background: We find that many Lyme disease case report forms are submitted without complete information on test results in the Laboratory Findings section.

The diagnosis of Lyme disease should be made on the basis of clinical examination, likelihood of deer tick exposure, and (if indicated), the results of laboratory testing.

Persons presenting with a possible *erythema migrans* (EM) rash should be diagnosed and treated on the basis of history and clinical examination, as laboratory tests may not be reactive at this early stage of infection. For persons with EM who present late or persons with secondary manifestations of disease such as cardiologic, rheumatologic or neurologic involvement, the following recommendations should be followed.

Recommendations: The Centers for Disease Control and Prevention (CDC) recommend a two-step process when testing blood for evidence of Lyme disease. Both steps can be done using the same specimen.

1) The first step uses a sensitive **ELISA** or **IFA** test. If the ELISA or IFA is negative, it is highly unlikely that the person has Lyme disease, and no further testing is recommended. If the ELISA or IFA is positive or equivocal a second step should be performed to confirm the results.

2) The second step uses a **Western blot** to test for **IgM** and **IgG** antibodies. A negative Western blot suggests a false-positive ELISA. Persons with a positive IgM and a negative IgG should be retested after one month if illness persists. If tests continue to identify a positive IgM in the absence of IgG, a false positive test is likely.

CDC does not recommend testing blood by Western blot without first testing it by ELISA or IFA. Doing so increases the potential for false positive results. Clinicians should also be wary of non-validated test methods used by some commercial laboratories, including polymerase chain reaction (PCR) testing of blood, urine antigen tests, and lymphocyte transformation tests. Some laboratories also interpret Western blot tests using criteria that have not been validated and published in peer-reviewed scientific literature (http://www.cdc.gov/mmwr/preview/mmwrhtml/mm5405a6.htm).

11/02/2005